thing by American botanists well under way until about five years later.

From this time up to the establishment of the New York Botanical Garden the history of our Club is practically that of botany in this city, for very little was done that was not directly or indirectly connected with us or, one might say, actually centered about us. This fact is of the utmost importance in our study, since upon it depends the essential character of most of what has since occurred.

The Club's history is so voluminous that it requires separate and extended treatment, and I can here do little but refer to its influence. Its first officers were George Thurber, president; Timothy F. Allen, vice-president; A. A. Crooke, treasurer; James Hogg, corresponding secretary; P. V. LeRoy, recording secretary; William H. Leggett, editor; P. V. LeRoy, curator.

Some of the more influential of the early members call for attention at this point.

(To be continued in the July number.)

SOME MORE COASTAL PLAIN PLANTS IN THE PALAEOZOIC REGION OF ALABAMA

By Roland M. Harper

The unusual occurrence in the Cumberland plateau region of Alabama of quite a number of species of plants rarely met with outside of the coastal plain has been mentioned in the last few years by Kearney,* Mohr † and Harbison, ‡ but the subject is by no means yet exhausted, as recent investigations have shown.

In November last it was my privilege to spend two days in DeKalb County, one of the northeasternmost counties of Alabama, and even at that late season I was fortunate enough to find most of the coastal plain plants already reported from that region, as well as some interesting additions to the list. On the 24th I spent a few hours on Sand Mountain, near its southeastern edge,

* Science II. 12 : 830–842. 1900.
† Contr. U. S. Nat. Herb. 6 : 77–79. 1901.
‡ Biltmore Bot. Stud. 1 : 154. 1902.

in the vicinity of Chavies P. O. (Sand Mountain, it should be explained, is a splendid example of a synclinal plateau capped by Carboniferous sandstones. In DeKalb and Jackson counties it is about 200 times as wide as high, being at least twenty miles wide and only a few hundred feet above the narrow valleys which bound it; so that when on its summit away from the edges it is difficult to realize that one is on a mountain at all.) Near Chavies a clear stream known as Town Creek runs lengthwise of the mountain, from northeast to southwest, and on exploring the banks of this creek a short distance I made some rather startling discoveries.

On rocky banks, probably within the reach of floods, *Chondrophora virgata* (Nutt.) Britton was quite common. This is a new station for it, though it had already been reported from this general region. * Associated with it was *Corcopsis verticillata* L., which Dr. Mohr found on Lookout Mountain in the same county. In crevices of rocks a little lower down, in the edge of the water, were some tufts of rush-like evergreen leaves, which at first sight I would have unhesitatingly pronounced an *Isoëtes*, especially since I knew I was in the only Alabama county from which an *Isoëtes* has been reported. But on pulling up a tuft I discovered that the leaves were jointed in the manner of many *Juncí*, and contained no sporangia at their bases. The odor of the plant then proclaimed it to be an umbellifer, and the characteristic double curvature of the leaves (outward and then upward) enabled me to recognize it as a species which of all others I would have least expected there. For this species is not one of those included in Mohr's Plant Life of Alabama, and moreover, it is not even congeneric with anything which was known to exist at the time that work was published. It is the sole known representative of a genus which had been described by Dr. Rose less than two months previously,‡ from two collections made in the coastal plain of Georgia, in 1902 and 1904. A few minutes later I secured enough remains of stems and inflorescence to establish its identity beyond a doubt, and a new genus was thus added

* For notes on its distribution, see Bull. Torrey Club 32 : 168. 1905.

† *Harperia nodosa* Rose, Proc. U. S. Nat. Mus. 29 : 441. *pl. 3.* O 1905.

to the known flora of the mountains and to that of Alabama at the same time.

This plant seems to be a biennial, and the leaf-character above mentioned does not appear in the flowering and fruiting specimens on which the original description was based, but I had noticed it at the New York Botanical Garden in 1903, in some plants raised from seeds of the type-specimens collected the year before. (The same plants flowered in 1904 and have probably since died.)

With the umbellifer was *Dianthera Americana* L., a characteristic plant of such situations, and in shallow rocky pools close by *Orontium aquaticum* L., both of which seem not to have been reported from this part of the state before. (The altitude of this point, it should be observed, is about 1150 feet above sea-level, according to the topographic maps of the U. S. Geological Survey.)

At the same place was also a *Xyris*, as yet unidentified, though it is in all probability the same as one reported from Lookout Mountain by Dr. Mohr under the name of *X. flexuosa* Muhl. In small areas of moist sand just above the rocky bed of the creek I noticed *Juncus repens* Michx. and *Gratiola pilosa* Michx., two more additions to the known flora of the mountains, though I had once before found the latter in the metamorphic region of Georgia.*

On flat rock outcrops a short distance away from the creek were noticed *Crotonopsis linearis* Michx. and *Arenaria brevifolia* Nutt., both of which are very characteristic of flat granite outcrops in Middle Georgia and are also known on Altamaha Grit outcrops in the pine-barrens of Georgia.†

On the way back from Town Creek still another surprise awaited me in the shape of several specimens of *Polygala nana* (Michx.) DC. in full bloom (it probably flowers throughout the year or nearly so) in dry woods between Chavies and the brow of the plateau. This, too, was previously known only from the coastal plain.

* See Bull. Torrey Club 30 : 294. 1903.

† See Torreya 4 : 140. 1904.

The next day I ascended Lookout Mountain from Fort Payne at its base, and went six or eight miles across the comparatively level summit to Little River, which runs lengthwise of the mountain much as Town Creek does on Sand Mountain, and at the point where I crossed it, as well as for some miles in either direction, forms the boundary between DeKalb and Cherokee Counties. Little River is frequently mentioned in Dr. Mohr's writings as a result of his work at a point about a dozen miles farther up, near Mentone. On this trip I found again all the plants mentioned above—with the exception of *Juncus repens* and *Gratiola pilosa*—and many others of equal interest.

Little River was so low at this time that at one point, just above a considerable fall, I was able to cross it on the rocks. Here *Chondrophora* was abundant on the rocks out in the stream, almost associating with *Dianthera*, in places which are doubtless submerged at high water. *Orontium*, *Harperia* and *Coreopsis verticillata* occurred on both sides of the river (and therefore in both counties) in precisely the same manner as I had seen them on Sand Mountain the day before. In small bogs like those along Town Creek I found for the first time that *Sarracenia* which has been reported from these mountains by all three writers above mentioned. Dr. Mohr referred it to *S. Catesbaei* Ell., but recent researches by Prof. J. M. Macfarlane have shown that Elliott's plant was very different from this. Further study in the growing season will be necessary to determine how much the mountain plant differs from *S. flava*, if it differs at all.

With the *Sarracenia* were among other things *Lachnocaulon anceps* (Michx.) Morong, *Smilax laurifolia* L., a small *Drosera*, presumably *D. brevifolia* Pursh, *Polygala nana*, *Sabbatia campanulata* (L.) Torr. and *Utricularia subulata* L. The *Lachnocaulon* does not seem to have been reported outside of the coastal plain before, though I have seen specimens collected on the same mountain several years ago by Prof. A. Ruth. The *Smilax*, a common coastal plain species, has been reported from the mountains of Tennessee by Dr. Gattinger, but not from northern Alabama before; while the *Drosera*, *Polygala* and *Utricularia* were previously known only from the coastal plain.

A number of rare plants characteristic of the mountain flora were seen on the cliffs along the river, but it is not the purpose of this paper to enumerate them. On the way back to Fort Payne I found *Polygala nana* again at a place where it was quite abundant in dry woods, as on Sand Mountain the day before.

On several flat sandstone outcrops away from the streams the flora strongly resembled that of granite outcrops in Middle Georgia and therefore to a lesser extent that of Altamaha Grit outcrops in South Georgia. The commonest inhabitants of such places, in approximate order of abundance, seemed to be as follows: *Crotonopsis linearis* Michx., *Sarothra gentianoides* L., *Diodia teres* Walt., *Stenophyllus capillaris* (L.) Britton, *Diamorpha pusilla* Nutt., *Arenaria brevifolia* Nutt., *Cyperus inflexus* Muhl. (new to Alabama), *Trichostema lineare* Nutt., and *Polygonum tenue* Michx. *Chondrophora virgata*, which associates with about half of these species in the Altamaha Grit region, seemed to be entirely absent here, being in the mountains apparently confined to the immediate vicinity of streams.

In the dry and damp woods which cover most of the plateaus above mentioned probably as many as nine tenths of the species which I was able to recognize are common to the coastal plain, though most of them are quite widely distributed through the intervening territory. The analogies between these plateaus and some parts of the coastal plain, especially the Altamaha Grit region, are numerous and striking, but I will not attempt to discuss them at this time.

Soon after leaving Lookout Mountain I spent about 24 hours in Limestone County, the middle one of the three Alabama counties which lie wholly north of the Tennessee River. The strata here are Lower Carboniferous, but there are very few outcrops of rock, and the whole aspect of the country, or as much of it as I saw, is strikingly like that of some parts of the Eocene region of the coastal plain.

Oaks of various kinds abound in Limestone County, but immediately north of Athens, the county-seat, *Pinus Taeda* seems to be the prevailing tree, though this is very near the limit of its known range in that direction, and pines of every kind seem to

be comparatively scarce north of the Tennessee River. Among these pines are a number of shallow ponds strongly resembling some of those near the inland edge of the pine-barrens in Georgia. In them besides the *Pinus Taeda* were *Panicum agrostoides* Muhl., *Cyperus pseudovegetus* Steud., *Rhynchospora corniculata* (Lam.) Gray, *R. glomerata paniculata* (Gray) Chapm., *Carex glaucescens* Ell. (abundant), *Xyris* sp., *Liquidambar Styraciflua* L., *Rhexia* sp., *Ludwigia glandulosa* Walt., *Cephalanthus occidentalis* L. and *Pluchea petiolata* Cass. ; and around the edges of one, *Erianthus strictus* Baldw. and *Juncus repens* Michx. Of these *Carex glaucescens* was previously supposed to be confined to the coastal plain, and the two Rhynchosporas mainly so. *Erianthus strictus* had been reported from near Tullahoma and Jackson, Tennessee, by Dr. Gattinger, but was otherwise known only from the coastal plain, from Georgia and Florida to Texas. In Georgia I have seen it only in places where the Lafayette formation seems to be absent, a condition which is of course fulfilled at the locality here described. The case of *Juncus repens* has already been mentioned above.

In alluvial bottoms in the southern part of Limestone County, especially in the Tennessee River swamps opposite Decatur, I saw considerable quantities of *Nyssa uniflora* Wang., and I was informed that it is an important timber tree there. This species is not generally known to occur outside of the coastal plain,* though I have seen it at a few places in the metamorphic and Palaeozoic regions of Georgia.

This discovery of several more coastal plain (or "pine-barren," or "austroriparian") plants in the mountain region of Alabama lends additional interest to the problem of explaining their occurrence there. The solution of this problem—which is by no means hopeless, though I am not prepared to undertake it at present — must go hand in hand with the study of the geological history of the regions involved, the details of which are still very imperfectly known. Although the flora of Alabama has prob-

* Its occurrence north of the Tennessee River in Alabama is mentioned incidentally and in a very inconspicuous way on page 43 of Bulletin 58 of the U. S. Bureau of Forestry, published in the summer of 1905.

ably been more carefully studied than that of any other southern state, thanks to the extended explorations of Dr. Mohr and others, too little is known even yet of the actual details of plant distribution and habitat relations in this or any neighboring state to warrant us in theorizing much on the subject at present. Later investigations in other parts of Alabama have led me to suspect that some of these outlying stations for coastal plain plants are not as isolated as has been supposed, but it will take some time to confirm this suspicion.

It is rather singular that many of the coastal plain plants above mentioned, even the rock-loving ones, seem to be confined in the mountains to the immediate vicinity of the larger streams. When this is satisfactorily explained we will perhaps have the key to the whole situation. But a great deal more careful field work has got to be done before this and analogous problems in other parts of the world can be solved.

Geological Survey of Alabama.

TWO NEW AND SOMEWHAT ANOMALOUS BLACKBERRIES

By W. H. Blanchard

The first plant now to be described must be placed with the dewberries though it is slow in getting down to the ground, and in vigorous plants the thick base of the canes is often two feet high the second year. The leaves on strong, new canes resemble those of *Rubus nigrobaccus* Bailey; the abundance of unequal glandular hairs suggests the *setosus* class, while the inflorescence and energetic tipping are manifestly typical of the dewberry. Therefore I propose to name this interesting plant

Rubus permixtus sp. nov.

Plant recurving and mostly prostrate with abundant glandular hairs of varying lengths (not the large glands with short stalks of *R. nigrobaccus*).

New canes. — Stems erect at first and from one to two feet high, recurving and running on the ground from three to six